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| 10/789,669   | 02/27/2004  | Norman Paul Jouppi   | 200315363-1         | 7567             |
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| HEWLETT PACKARD COMPANY<br>P O BOX 272400, 3404 E. HARMONY ROAD<br>INTELLECTUAL PROPERTY ADMINISTRATION<br>FORT COLLINS, CO 80527-2400 |             |                      |                     |                  |
|  |             |                      | EXAMINER            |                  |
|  |             |                      | OLSEN, LIN B        |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 3661                |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|                              |                                      |  |
|------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/789,669 | <b>Applicant(s)</b><br>JOUSSI, NORMAN PAUL |
|                              | <b>Examiner</b><br>LIN B. OLSEN      | <b>Art Unit</b><br>3661                    |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 05 December 2007.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-28 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

***Response to Amendment and Arguments***

Applicant's arguments, see page 8, filed 5 December 2008, with respect to the objection to claims 12 and 24 have been fully considered and are not persuasive. See the rejection under 35 USC § 112 below.

Applicant's amendments and arguments, see page 8, with respect to the rejection of claims 3 and 15 have been fully considered and are persuasive. The rejection of claims 3 and 15 has been withdrawn.

Applicant's amendments and arguments on page 8–10 with respect to the rejection of claims 1–24 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **6, 12, 18 and 24** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner notes that in claims 5, 11, 17 and 23 logged information of forward motion was created. Hence "logged information" in claims 6, 12, 18 and 24 was not being introduced for the first time. Claims 6, 12, 18 and 24 can either be amended to depend on claims 5, 11, 17 and 23 respectively, indicating that the logged information in the claims is the same, or claims 6, 12, 18 and 24 can be amended, indicating that the logged information in those claims is different from the

logged information created in claims 5, 11, 17 and 23. Appropriate correction is required.

**Claim 27** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites transmitting a video signal at the acceptable bandwidth before detecting unsuitable degradation of wireless communications. It is unclear how the transmitter knows that an unsuitable degradation of the wireless communication will occur so that the video signal can be transmitted before the degradation is detected.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The four independent claims will be treated separately, but those dependent claims that are comparable will be treated together.

Claims 1, 7, 13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 2004/0193334 (Carlsson) in view of "PRoP: Personal Roving Presence" Eric Paulos & John Canny (Paulos). Carlsson is concerned with control of an Unmanned Aerial Vehicle (UAV) when communications are impaired. One of ordinary skill in the art of controlling mobile devices would be well versed in controlling devices on land, water and in the air. It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt well known control mechanisms for any of these

devices to a device being improved. Paulos is concerned with a mobile telepresencing device.

Regarding independent **claim 1**, A method of mobile device control comprising: moving a surrogate under wireless control by a user; during the moving, detecting unsuitable degradation of wireless communications of the wireless control; and – Carlsson teaches moving a surrogate airplane under wireless control by a user, ¶1. During travel, Carlsson monitors the state of the command link, (¶50) choosing to detect either an operative or inoperative state although he mentions that further graduations can be detected.

in response to the detecting and while the surrogate is still receiving the wireless communications, autonomously moving the surrogate to provide suitable wireless communications of the wireless control. – in response to detecting Carlsson increases the UAV's altitude (¶s 51-53) to reestablish the command link. Since Carlsson chose to use classify the quality of wireless communication into only 2 levels, interrupted communication can be declared while the UAV is still receiving communications of some sort. It would have been obvious to implement an intermediate level as Carlsson suggested and take the preventive measure of increasing the altitude in response to in response to that condition.

Regarding independent **claim 7**, - A method of mobile telepresencing comprising: - The recitation of telepresencing in claim 7 has not been given patentable

weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

moving a surrogate under real-time wireless control by a user; – Carlsson teaches moving a surrogate airplane under wireless control by a user, ¶1. autonomously moving the surrogate to an area with adequate wireless coverage to regain wireless control when the wireless control is lost for a period of time; and - in response to detecting loss of wireless control, Carlsson increases the UAV's altitude (¶s 51-53) to reestablish the command link. This is a known technique to regain signal.

while the surrogate is autonomously moving, activating a human perceptible indicator which is perceptible to humans in the presence of the surrogate. – UAV's are primarily used for covert surveillance, so Carlsson does teach calling attention to the UAV when moving autonomously. However, Paulos discusses robots similar to the applicants and indicates in the paragraphs labeled "Social Issues, Safety" that such a device must at all time provide a safe environment for humans nearby. Indicating that the device is not being controlled remotely is an obvious safety precaution. It would have been obvious to one of ordinary skill in the art at the time of the invention to adopt the safety techniques used in an open use of a robot when the device is moving autonomously where humans are present.

Regarding independent **claim 13** - A mobile device control system comprising:  
a surrogate movable under wireless control by a user; and - A UAV is a  
surrogate for a manned airplane and Carlsson teaches moving a surrogate airplane  
under wireless control by a user, ¶1.

a computer/transceiver on the surrogate for moving the surrogate to regain  
wireless control independently of the wireless control after a passage of a non-zero  
amount of time following loss of the wireless control. – Carlsson's control system is  
shown in Fig. 3 described in ¶s 55-56, where the processing unit and wireless interface  
are described. In ¶49 the timeline of lost control link processing is described. The UAV  
is operated independently after the wireless link is lost for a period of time.

Regarding independent **claim 19** - A mobile telepresencing system comprising: -  
The limiter "telepresencing" is not given a patentable weight for the same reasons given  
with respect to claim 7.

a surrogate movable under wireless control by a user; - A UAV is a surrogate for  
a manned airplane and Carlsson teaches moving a surrogate airplane under wireless  
control by a user, ¶1.

and a computer/transceiver system for determining when the wireless control is  
lost and – Carlsson's control system is shown in Fig. 3 described in ¶s 55-56, where the  
processing unit and wireless interface are described. In ¶49 the timeline of lost control  
link processing is described.

responsive to the determining, autonomously moving the surrogate to an area not currently receiving adequate coverage of the wireless control, but in which the surrogate previously experienced adequate coverage of the wireless control to regain adequate coverage of the wireless control. Carlsson's UAV autonomously maneuvers back to the area from which it was launched in one scenario ¶ 51. This is an area where the UAV previously had wireless control, but the UAV does not currently know the state of wireless control at that location at the time it starts maneuvering toward it. ¶ 51 states that the UAV's maneuvers increases the chances of reestablishing the command link and preserves the UAV.

Regarding **claims 2, 8, 14, 20**, which are dependent on claims 1, 7, 13 and 19 respectively, additionally comprising:

autonomously moving the surrogate along a previously determined route. – at ¶ 51, Carlsson describes moving the UAV along an emergency route. An Emergency Route satisfies one of a previously determined route, a distance, a destination, a direction or a combination thereof.

Regarding **claims 3, 9, 15, and 21**, which are dependent on claims 1, 7, 13, and 19 respectively, wherein:

autonomously moving the surrogate to regain wireless control occurs after passage of a period of time following the detecting of the degradation. – In ¶ 51

Carlsson describes waiting a second time interval before implementing the increase in altitude and following the emergency route.

Regarding **claims 4 and 16**, which are dependent on claim 1 and 13 respectively, wherein:

autonomously moving the surrogate includes measuring distance and avoiding collisions by the surrogate. – at Carlsson ¶ 7, initiating horizontal flight is a response to loss of wireless link because this will avoid a crash, a collision with the ground. Further, as shown in Fig. 3, the UAV incorporates an on-board flight control system 310 that records the route flown (¶ 56) in order to be able to find waypoints programmed into the system.

Regarding **claims 5, 11, 17 and 23** which are dependent on claim 1, 7, 13, and 19 respectively wherein:

moving the surrogate under wireless control includes logging forward motion using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, and a combination thereof. – Carlsson discloses the claimed invention except for logging motion by methods useable on the ground. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of dead reckoning, odometry, directional measurement or differential wheel rotation to record movement since it was known in the art to measure movement by these means.

Regarding **claims 6 and 18** which are dependent on claims 1 and 13 wherein:

autonomously moving the surrogate uses logged information of forward movement using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, and a combination thereof; and

autonomously moving the surrogate uses waypoints back along a forward movement path for backtracking movement. – Carlsson tracked the UAV's movements relative to a terrain map incorporated in its controller. When wireless control was lost, the UAV used waypoints in the terrain database to determine its responsive travels (¶ 51).

Claims **25 & 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlsson/Paulos as applied to claims 1-6 above, and further in view of U.S. Patent No. 6,377,875 (Schwaerzler). Schwaerzler, like Carlsson, is concerned with control of UAV's especially during loss of remote wireless control signals.

Regarding **claim 25**, which is dependent on claim 1 wherein:

the detecting comprises comparing a performance parameter associated with the wireless communications with a threshold. Carlsson does indicate that the engine parameters are monitored by measuring against a threshold (¶ 5), but does not specify how the command link parameter is monitored. Schwaerzler however, at col. 3 ln 35-40 indicates that the radio measures among other things that there is an existing signal but below a readable threshold. It would have been obvious to one of ordinary skill in the art

at the time of the invention to use Schwaerzler's measurement technique in Carlsson's parameter monitoring.

Regarding **claim 26**, which is dependent on claim 25 wherein: the performance parameter comprises a bandwidth and the threshold comprises an acceptable bandwidth. – in Schwaerzler, col. 3, l 44-45, the radio detects "input signal, but unreadable modulation", where modulation is the measure of bandwidth.

Claims **10, 12, 22, 24 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlsson/Paulos as applied to claims 7 and 19 above, and further in view of A. Stentz, C.Dima, C Wellington, H. Herman and D. Stager "A System for Semi-Autonomous Tractor operations" (Stentz). Stentz is concerned with a tractor operation that is intermittently in wireless control by a user and executes autonomous when possible.

Regarding **claims 10, 22 are 28**, which are dependent on claims 7, 19 and 10 respectively wherein:

The computer/transceiver system for autonomously moving the surrogate includes;

backtracking means for measuring distance and avoiding collisions by the surrogate during backtracking; -

stopping means for stopping the surrogate for a chosen obstacle; and means for resuming backtracking after removal of the obstacle.

– at Carlsson ¶ 7, initiating horizontal flight is a response to loss of wireless link because this will avoid a crash, equivalent to a collision with the ground. Further, as shown in Fig. 3, the UAV incorporates an on-board flight control system 310 that records the route flown (¶ 56) in order to be able to find waypoints programmed into the system. However, Carlsson does not respond to obstacles by stopping, rather it teaches increasing altitude and changing course in response to obstacles. Stentz teaches using a semi-autonomous tractor for a manned tractor and measuring distance by wheel rotations. When the tractor moving autonomously detects an obstacle, it stops (p. 90, paragraph under Fig. 2). Subsequently, when the obstacle is removed or it determined that the tractor has misidentified the obstacle, it resumes travel. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Stentz's response to an obstacle in the response mechanism of Carlsson/Paulos since stopping for an obstacle on the ground is a safety response and applying a known technique to improve the safety of a mobile device is an improvement on the device.

Regarding **claims 12 and 24**, which are dependent on claims 7 and 19 respectively wherein:

autonomously moving the surrogate to backtrack uses logged information of forward movement using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, and a combination thereof;

autonomously moving the surrogate to backtrack uses a slower speed than forward speed; and

autonomously moving the surrogate uses waypoints back along a forward movement path for backtracking movement considering the slower speed of backtracking. - Carlsson/Paulos/Stentz discloses the invention except for using a slower speed when backtracking. It would have been obvious to one having ordinary skill in the art at the time of the invention to travel slower when maneuvering autonomously rather than under remote control because of the extra computation. Further, the condition of assuring that any humans near the device not be harmed implies slower motion. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LO/

/Thomas G. Black/

Supervisory Patent Examiner, Art Unit 3661